

WHAT IS CLAIMED IS:

1. A method for handling fabric state changes, comprising:
 - 5 receiving an event indicating a fabric state change for one or more host adapter ports; and
 - dynamically changing the host system's fabric device configuration in response to said receiving an event;
- 10 wherein said dynamically changing comprises bringing online or taking offline one or more fabric devices for the one or more host adapter ports for the host system.
- 15 2. The method as recited in claim 1, further comprising determining an event type for said event.
- 20 3. The method as recited in claim 2, wherein if the event type indicates that one of the fabric host adapter ports has lost connectivity to the fabric, said dynamically changing comprises taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric.
- 25 4. The method as recited in claim 3, wherein said taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric comprises:
 - reading a persistent repository that indicates which fabric devices are currently online for the host adapter port that lost connectivity to the fabric; and

10 taking offline the fabric devices indicated by the persistent repository for the host
15 adapter port that lost connectivity to the fabric.

20 5. The method as recited in claim 3, wherein said taking offline comprises
5 disabling an operating system node for each of the one or more fabric devices being taken
offline, wherein each operating system node provides a communication mechanism to a
corresponding fabric device.

10 6. The method as recited in claim 2, wherein if the event type indicates that
15 one of the fabric host adapter ports has lost connectivity to the fabric, said dynamically
changing comprises:

15 15 accessing a configuration file for the host adapter port that lost connectivity to the
fabric to determine if fabric devices for that host adapter port are to be
unconfigured if that host adapter port loses connectivity to the fabric; and

20 20 if the configuration file indicates that fabric devices are to be unconfigured upon
lose of connectivity to the fabric, taking offline one or more fabric devices
configured through the host adapter port that lost connectivity to the
fabric.

25 7. The method as recited in claim 6, wherein taking offline one or more
fabric devices configured through the host adapter port that lost connectivity to the fabric
comprises:

25 reading a persistent repository that indicates which fabric devices are currently
online for the host adapter port that lost connectivity to the fabric; and

30 30 taking offline the fabric devices indicated by the persistent repository for the host
adapter port that lost connectivity to the fabric.

8. The method as recited in claim 6, wherein said taking offline comprises disabling an operating system node for each of the one or more fabric devices being taken offline, wherein each operating system node provides a communication mechanism to a 5 corresponding fabric device.

9. The method as recited in claim 6, further comprising, prior to said receiving an event:

10 a host adapter driver for one of the one or more host adapter ports becoming inactive or detached; and

15 generating the event indicating that one of the one or more host adapter ports has lost connectivity to the fabric.

10. The method as recited in claim 6, wherein said accessing a configuration file for the host adapter port that lost connectivity to the fabric comprises reading a user-defined attribute in the configuration file, wherein the user-defined attribute indicates whether or not fabric devices for that host adapter port are to be unconfigured if that host 20 adapter port loses connectivity to the fabric

11. The method as recited in claim 2, wherein if the event type indicates that one of the fabric host adapter ports has acquired connectivity to the fabric, said dynamically changing comprises bringing online one or more fabric devices for the host 25 adapter port that has acquired connectivity to the fabric.

12. The method as recited in claim 11, wherein said bringing online one or more fabric devices for the host adapter port that has acquired connectivity to the fabric comprises:

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reading a persistent repository that indicates which fabric devices were previously online for the host adapter port that has acquired connectivity to the fabric; and

5 bringing online the fabric devices indicated by the persistent repository for the host adapter port that has acquired connectivity to the fabric.

13. The method as recited in claim 11, wherein said bringing online comprises creating an operating system node for each of the one or more fabric devices being 10 brought online, wherein each operating system node provides a communication mechanism to a corresponding fabric device.

14. The method as recited in claim 2, wherein if the event type indicates that one of the fabric host adapter ports has acquired connectivity to the fabric, said 15 dynamically changing comprises:

accessing a configuration file for the host adapter port that has acquired connectivity to the fabric to determine if fabric devices for that host adapter port are to be configured if that host adapter port acquires 20 connectivity to the fabric; and

if the configuration file indicates that fabric devices are to be configured upon that host adapter port's connectivity to the fabric, bringing online one or more fabric devices for that host adapter port that has acquired connectivity to 25 the fabric.

15. The method as recited in claim 14, wherein bringing online one or more fabric devices configured through the host adapter port that has acquired connectivity to the fabric comprises:

reading a persistent repository that indicates which fabric devices were previously online for the host adapter port that has acquired connectivity to the fabric; and

5 bringing online the fabric devices indicated by the persistent repository for the host adapter port that has acquired connectivity to the fabric.

16. The method as recited in claim 14, wherein said bringing online comprises creating an operating system node for each of the one or more fabric devices being 10 brought online, wherein each operating system node provides a communication mechanism to a corresponding fabric device.

17. The method as recited in claim 14, further comprising, prior to said receiving an event:

15 a host adapter driver for one of the one or more host adapter ports becoming active or attached; and

20 generating the event indicating that one of the one or more host adapter ports has acquired connectivity to the fabric.

18. The method as recited in claim 14, wherein said accessing a configuration file for the host adapter port that has acquired connectivity to the fabric comprises reading a user-defined attribute in the configuration file, wherein the user-defined attribute indicates whether or not fabric devices for that host adapter port are to be configured if 25 that host adapter port acquires connectivity to the fabric.

19. The method as recited in claim 2, wherein if the event type indicates that a new fabric device has been connected to the fabric, said dynamically changing comprises 30 bringing online the new fabric device for one of the one or more host adapter ports.

20. The method as recited in claim 19, wherein said bringing online comprises creating an operating system node for the new fabric device being brought online, wherein the operating system node provides a communication mechanism to the new 5 fabric device.

21. The method as recited in claim 19, wherein said bringing online the new fabric device comprises updating a persistent repository to indicate that the new fabric device is online for the host adapter port.

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22. The method as recited in claim 2, wherein if the event type indicates that a new fabric device has been connected to the fabric, said dynamically changing comprises:

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accessing a configuration file for one of the one or more host adapter ports to determine if newly connected fabric devices for that host adapter port are to be dynamically configured; and

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if the configuration file indicates newly connected fabric devices are to be dynamically configured, bringing online the new fabric device for that host adapter port.

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23. The method as recited in claim 22, wherein said bringing online comprises creating an operating system node for the new fabric device being brought online, wherein the operating system node provides a communication mechanism to the new fabric device.

24. The method as recited in claim 22, wherein said bringing online the new fabric device comprises updating a persistent repository to indicate that the new fabric device is online for the host adapter port.

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25. The method as recited in claim 22, further comprising, prior to said receiving an event:

5 connecting the fabric device to the fabric; and

a fabric driver generating the event indicating that the new fabric device has been connected to the fabric.

10 26. The method as recited in claim 22, wherein said accessing a configuration file comprises reading a user-defined attribute in the configuration file, wherein the user-defined attribute indicates whether or not newly connected fabric devices for that host adapter port are to be dynamically configured upon detection.

15 27. The method as recited in claim 1, wherein the one or more host adapter ports comprise Fibre Channel host adapter ports.

28. The method as recited in claim 1, wherein the fabric comprises a Fibre Channel switched fabric comprising a plurality of Fibre Channel switches.

20 29. The method as recited in claim 1, wherein the fabric is part of a storage area network (SAN), and wherein the fabric devices comprise storage devices.

25 30. The method as recited in claim 1, wherein said dynamically changing comprises verifying the one or more fabric devices before bringing the one or more fabric devices online, wherein said verifying comprises accessing a fabric name server to determine if the one or more fabric devices are currently connected to the fabric.

31. A host system, comprising:

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one or more host adapter ports for coupling to a fabric;

a fabric event agent configured to:

5 receive an event indicating a fabric state change for one or more of the host adapter ports; and

dynamically change the host system's fabric device configuration in response to said receiving an event;

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wherein the fabric event agent is configured to dynamically change the host system's fabric device configuration by bringing online or taking offline one or more fabric devices for the one or more host adapter ports for the host system.

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32. The host system as recited in claim 31, wherein the fabric event agent is further configured to determine event type for said event.

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33. The host system as recited in claim 32, wherein if the event type indicates that one of the fabric host adapter ports has lost connectivity to the fabric, the fabric event agent is further configured to dynamically change the host system's fabric device configuration by taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric.

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34. The host system as recited in claim 33, wherein said taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric comprises:

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reading a persistent repository that indicates which fabric devices are currently online for the host adapter port that lost connectivity to the fabric; and

5 taking offline the fabric devices indicated by the persistent repository for the host adapter port that lost connectivity to the fabric.

10 35. The host system as recited in claim 33, wherein said taking offline comprises disabling an operating system node for each of the one or more fabric devices being taken offline, wherein each operating system node provides a communication mechanism to a corresponding fabric device.

15 36. The host system as recited in claim 32, wherein if the event type indicates that one of the fabric host adapter ports has lost connectivity to the fabric, the fabric event agent is further configured to dynamically change the host system's fabric device configuration by:

20 15 accessing a configuration file for the host adapter port that lost connectivity to the fabric to determine if fabric devices for that host adapter port are to be unconfigured if that host adapter port loses connectivity to the fabric; and

25 20 if the configuration file indicates that fabric devices are to be unconfigured upon lose of connectivity to the fabric, taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric.

30 37. The host system as recited in claim 36, wherein taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric comprises:

reading a persistent repository that indicates which fabric devices are currently online for the host adapter port that lost connectivity to the fabric; and

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10 taking offline the fabric devices indicated by the persistent repository for the host
15 adapter port that lost connectivity to the fabric.

38. The host system as recited in claim 36, wherein said taking offline
5 comprises disabling an operating system node for each of the one or more fabric devices
being taken offline, wherein each operating system node provides a communication
mechanism to a corresponding fabric device.

39. The host system as recited in claim 36, further comprising:

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a host adapter driver for one of the one or more host adapter ports; and

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a fabric driver configured to generate the event indicating that one of the one or
more host adapter ports has lost connectivity to the fabric.

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40. The host system as recited in claim 36, wherein said accessing a
configuration file for the host adapter port that lost connectivity to the fabric comprises
reading a user-defined attribute in the configuration file, wherein the user-defined attribute
indicates whether or not fabric devices for that host adapter port are to be unconfigured if
that host adapter port loses connectivity to the fabric

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41. The host system as recited in claim 32, wherein if the event type indicates
that one of the fabric host adapter ports has acquired connectivity to the fabric, the fabric
event agent is further configured to dynamically change the host system's fabric device
configuration by bringing online one or more fabric devices for the host adapter port that
has acquired connectivity to the fabric.

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42. The host system as recited in claim 41, wherein said bringing online one or
more fabric devices for the host adapter port that has acquired connectivity to the fabric
comprises:

reading a persistent repository that indicates which fabric devices were previously online for the host adapter port that has acquired connectivity to the fabric; and

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bringing online the fabric devices indicated by the persistent repository for the host adapter port that has acquired connectivity to the fabric.

43. The host system as recited in claim 41, wherein said bringing online 10 comprises creating an operating system node for each of the one or more fabric devices being brought online, wherein each operating system node provides a communication mechanism to a corresponding fabric device.

44. The host system as recited in claim 32, wherein if the event type indicates 15 that one of the fabric host adapter ports has acquired connectivity to the fabric, the fabric event agent is further configured to dynamically change the host system's fabric device configuration by:

accessing a configuration file for the host adapter port that has acquired 20 connectivity to the fabric to determine if fabric devices for that host adapter port are to be configured if that host adapter port acquires connectivity to the fabric; and

if the configuration file indicates that fabric devices are to be configured upon that 25 host adapter port's connectivity to the fabric, bringing online one or more fabric devices for that host adapter port that has acquired connectivity to the fabric.

45. The host system as recited in claim 44, wherein bringing online one or more fabric devices configured through the host adapter port that has acquired connectivity to the fabric comprises:

5 reading a persistent repository that indicates which fabric devices were previously online for the host adapter port that has acquired connectivity to the fabric; and

10 bringing online the fabric devices indicated by the persistent repository for the host adapter port that has acquired connectivity to the fabric.

46. The host system as recited in claim 44, wherein said bringing online comprises creating an operating system node for each of the one or more fabric devices being brought online, wherein each operating system node provides a communication 15 mechanism to a corresponding fabric device.

47. The host system as recited in claim 44, further comprising:

20 a host adapter driver for one of the one or more host adapter ports becoming active or attached prior to said receiving an event; and

a fabric driver generating the event indicating that one of the one or more host adapter ports has acquired connectivity to the fabric.

25 48. The host system as recited in claim 44, wherein said accessing a configuration file for the host adapter port that has acquired connectivity to the fabric comprises reading a user-defined attribute in the configuration file, wherein the user-defined attribute indicates whether or not fabric devices for that host adapter port are to be configured if that host adapter port acquires connectivity to the fabric.

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49. The host system as recited in claim 32, wherein if the event type indicates that a new fabric device has been connected to the fabric, the fabric event agent is further configured to dynamically change the host system's fabric device configuration by bringing online the new fabric device for one of the one or more host adapter ports.

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50. The host system as recited in claim 49, wherein said bringing online comprises creating an operating system node for the new fabric device being brought online, wherein the operating system node provides a communication mechanism to the new fabric device.

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51. The host system as recited in claim 49, wherein said bringing online the new fabric device comprises updating a persistent repository to indicate that the new fabric device is online for the host adapter port.

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52. The host system as recited in claim 32, wherein if the event type indicates that a new fabric device has been connected to the fabric, the fabric event agent is further configured to dynamically change the host system's fabric device configuration by:

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accessing a configuration file for one of the one or more host adapter ports to determine if newly connected fabric devices for that host adapter port are to be dynamically configured; and

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if the configuration file indicates newly connected fabric devices are to be dynamically configured, bringing online the new fabric device for that host adapter port.

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53. The host system as recited in claim 52, wherein said bringing online comprises creating an operating system node for the new fabric device being brought online, wherein the operating system node provides a communication mechanism to the new fabric device.

54. The host system as recited in claim 52, wherein said bringing online the new fabric device comprises updating a persistent repository to indicate that the new fabric device is online for the host adapter port.

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55. The host system as recited in claim 52, further comprising:

a fabric driver generating the event indicating that the new fabric device has been connected to the fabric.

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56. The host system as recited in claim 52, wherein said accessing a configuration file comprises reading a user-defined attribute in the configuration file, wherein the user-defined attribute indicates whether or not newly connected fabric devices for that host adapter port are to be dynamically configured upon detection.

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57. The host system as recited in claim 31, wherein the one or more host adapter ports comprise Fibre Channel host adapter ports.

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58. The host system as recited in claim 31, wherein the fabric comprises a

Fibre Channel switched fabric comprising a plurality of Fibre Channel switches.

59. The host system as recited in claim 31, wherein the fabric is part of a storage area network (SAN), and wherein the fabric devices comprise storage devices.

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60. The host system as recited in claim 31, wherein the fabric event agent is further configured to dynamically change the host system's fabric device configuration by verifying the one or more fabric devices before bringing the one or more fabric devices online, wherein said verifying comprises accessing a fabric name server to determine if the one or more fabric devices are currently connected to the fabric.

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61. A computer readable medium having stored thereon data representing program instructions, wherein the program instructions are executable by one or more processors to implement:

5 receiving an event indicating a fabric state change for one or more host adapter ports; and

dynamically changing the host system's fabric device configuration in response to said receiving an event;

10 wherein said dynamically changing comprises bringing online or taking offline one or more fabric devices for the one or more host adapter ports for the host system.

15 62. The computer readable medium as recited in claim 61, wherein the program instructions are further executable to implement determining an event type for said event.

20 63. The computer readable medium as recited in claim 62, wherein if the event type indicates that one of the fabric host adapter ports has lost connectivity to the fabric, said dynamically changing comprises taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric.

25 64. The computer readable medium as recited in claim 63, wherein said taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric comprises:

reading a persistent repository that indicates which fabric devices are currently online for the host adapter port that lost connectivity to the fabric; and

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taking offline the fabric devices indicated by the persistent repository for the host adapter port that lost connectivity to the fabric.

65. The computer readable medium as recited in claim 63, wherein said taking offline comprises disabling an operating system node for each of the one or more fabric devices being taken offline, wherein each operating system node provides a communication mechanism to a corresponding fabric device.

66. The computer readable medium as recited in claim 62, wherein if the event type indicates that one of the fabric host adapter ports has lost connectivity to the fabric, said dynamically changing comprises:

15 accessing a configuration file for the host adapter port that lost connectivity to the fabric to determine if fabric devices for that host adapter port are to be unconfigured if that host adapter port loses connectivity to the fabric; and

20 if the configuration file indicates that fabric devices are to be unconfigured upon lose of connectivity to the fabric, taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric.

67. The computer readable medium as recited in claim 66, wherein taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric comprises:

25 reading a persistent repository that indicates which fabric devices are currently online for the host adapter port that lost connectivity to the fabric; and

30 taking offline the fabric devices indicated by the persistent repository for the host adapter port that lost connectivity to the fabric.

68. The computer readable medium as recited in claim 66, wherein said taking offline comprises disabling an operating system node for each of the one or more fabric devices being taken offline, wherein each operating system node provides a 5 communication mechanism to a corresponding fabric device.

69. The computer readable medium as recited in claim 66, wherein the program instructions are further executable to implement, prior to said receiving an event:

10 a host adapter driver for one of the one or more host adapter ports becoming inactive or detached; and

15 generating the event indicating that one of the one or more host adapter ports has lost connectivity to the fabric.

70. The computer readable medium as recited in claim 66, wherein said accessing a configuration file for the host adapter port that lost connectivity to the fabric comprises reading a user-defined attribute in the configuration file, wherein the user-defined attribute indicates whether or not fabric devices for that host adapter port are to be 20 unconfigured if that host adapter port loses connectivity to the fabric

71. The computer readable medium as recited in claim 62, wherein if the event type indicates that one of the fabric host adapter ports has acquired connectivity to the fabric, said dynamically changing comprises bringing online one or more fabric devices 25 for the host adapter port that has acquired connectivity to the fabric.

72. The computer readable medium as recited in claim 71, wherein said bringing online one or more fabric devices for the host adapter port that has acquired connectivity to the fabric comprises:

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reading a persistent repository that indicates which fabric devices were previously online for the host adapter port that has acquired connectivity to the fabric; and

5 bringing online the fabric devices indicated by the persistent repository for the host adapter port that has acquired connectivity to the fabric.

73. The computer readable medium as recited in claim 71, wherein said bringing online comprises creating an operating system node for each of the one or more 10 fabric devices being brought online, wherein each operating system node provides a communication mechanism to a corresponding fabric device.

74. The computer readable medium as recited in claim 62, wherein if the event 15 type indicates that one of the fabric host adapter ports has acquired connectivity to the fabric, said dynamically changing comprises:

accessing a configuration file for the host adapter port that has acquired 20 connectivity to the fabric to determine if fabric devices for that host adapter port are to be configured if that host adapter port acquires connectivity to the fabric; and

if the configuration file indicates that fabric devices are to be configured upon that host adapter port's connectivity to the fabric, bringing online one or more 25 fabric devices for that host adapter port that has acquired connectivity to the fabric.

75. The computer readable medium as recited in claim 74, wherein bringing online one or more fabric devices configured through the host adapter port that has acquired connectivity to the fabric comprises:

reading a persistent repository that indicates which fabric devices were previously online for the host adapter port that has acquired connectivity to the fabric; and

5 bringing online the fabric devices indicated by the persistent repository for the host adapter port that has acquired connectivity to the fabric.

76. The computer readable medium as recited in claim 74, wherein said bringing online comprises creating an operating system node for each of the one or more 10 fabric devices being brought online, wherein each operating system node provides a communication mechanism to a corresponding fabric device.

77. The computer readable medium as recited in claim 74, wherein the program instructions are further executable to implement, prior to said receiving an event:

15 a host adapter driver for one of the one or more host adapter ports becoming active or attached; and

20 generating the event indicating that one of the one or more host adapter ports has acquired connectivity to the fabric.

78. The computer readable medium as recited in claim 74, wherein said accessing a configuration file for the host adapter port that has acquired connectivity to the fabric comprises reading a user-defined attribute in the configuration file, wherein the 25 user-defined attribute indicates whether or not fabric devices for that host adapter port are to be configured if that host adapter port acquires connectivity to the fabric.

79. The computer readable medium as recited in claim 62, wherein if the event type indicates that a new fabric device has been connected to the fabric, said dynamically

changing comprises bringing online the new fabric device for one of the one or more host adapter ports.

80. The computer readable medium as recited in claim 79, wherein said
5 bringing online comprises creating an operating system node for the new fabric device
being brought online, wherein the operating system node provides a communication
mechanism to the new fabric device.

81. The computer readable medium as recited in claim 79, wherein said
10 bringing online the new fabric device comprises updating a persistent repository to
indicate that the new fabric device is online for the host adapter port.

82. The computer readable medium as recited in claim 62, wherein if the event
type indicates that a new fabric device has been connected to the fabric, said dynamically
15 changing comprises:

accessing a configuration file for one of the one or more host adapter ports to
determine if newly connected fabric devices for that host adapter port are
to be dynamically configured; and
20 if the configuration file indicates newly connected fabric devices are to be
dynamically configured, bringing online the new fabric device for that host
adapter port.

25 83. The computer readable medium as recited in claim 82, wherein said
bringing online comprises creating an operating system node for the new fabric device
being brought online, wherein the operating system node provides a communication
mechanism to the new fabric device.

84. The computer readable medium as recited in claim 82, wherein said bringing online the new fabric device comprises updating a persistent repository to indicate that the new fabric device is online for the host adapter port.

5 85. The computer readable medium as recited in claim 82, wherein the program instructions are further executable to implement, prior to said receiving an event:

connecting the fabric device to the fabric; and

10 a fabric driver generating the event indicating that the new fabric device has been connected to the fabric.

15 86. The computer readable medium as recited in claim 82, wherein said accessing a configuration file comprises reading a user-defined attribute in the configuration file, wherein the user-defined attribute indicates whether or not newly connected fabric devices for that host adapter port are to be dynamically configured upon detection.

20 87. The computer readable medium as recited in claim 61, wherein the one or more host adapter ports comprise Fibre Channel host adapter ports.

88. The computer readable medium as recited in claim 61, wherein the fabric comprises a Fibre Channel switched fabric comprising a plurality of Fibre Channel switches.

25 89. The computer readable medium as recited in claim 61, wherein the fabric is part of a storage area network (SAN), and wherein the fabric devices comprise storage devices.

90. The computer readable medium as recited in claim 61, wherein said dynamically changing comprises verifying the one or more fabric devices before bringing the one or more fabric devices online, wherein said verifying comprises accessing a fabric name server to determine if the one or more fabric devices are currently connected to the fabric.